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ABSTRACT

This student manual on checking and replacing the starter rewind rope is the second of three in an instructional package on the starting system in the Small Engine Repair Series for handicapped students. The stated purpose for the booklet is to help students learn what tools and equipment to use in checking and replacing the starter rewind rope and all the steps of the job. Informative material and photographs are provided on the tools and equipment and the steps of checking and replacing the starter rewind rope. A rating scale and chart are included for evaluation of student progress. (YLB)

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STUDENT MANUAL

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STARTING SYSTEM

CHECK AND REPLACE THE STARTER REWIND ROPE

1

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SMALL ENGINE REPAIR SERIES

2

STUDENT MANUAL 1

CHECK AND REPLACE THE STARTER REWIND ROPE

Prepared by
Pamela Hill

MATERIALS DEVELOPED AND DISTRIBUTED BY
OCCUPATIONAL CURRICULUM LABORATORY
EAST TEXAS STATE UNIVERSITY
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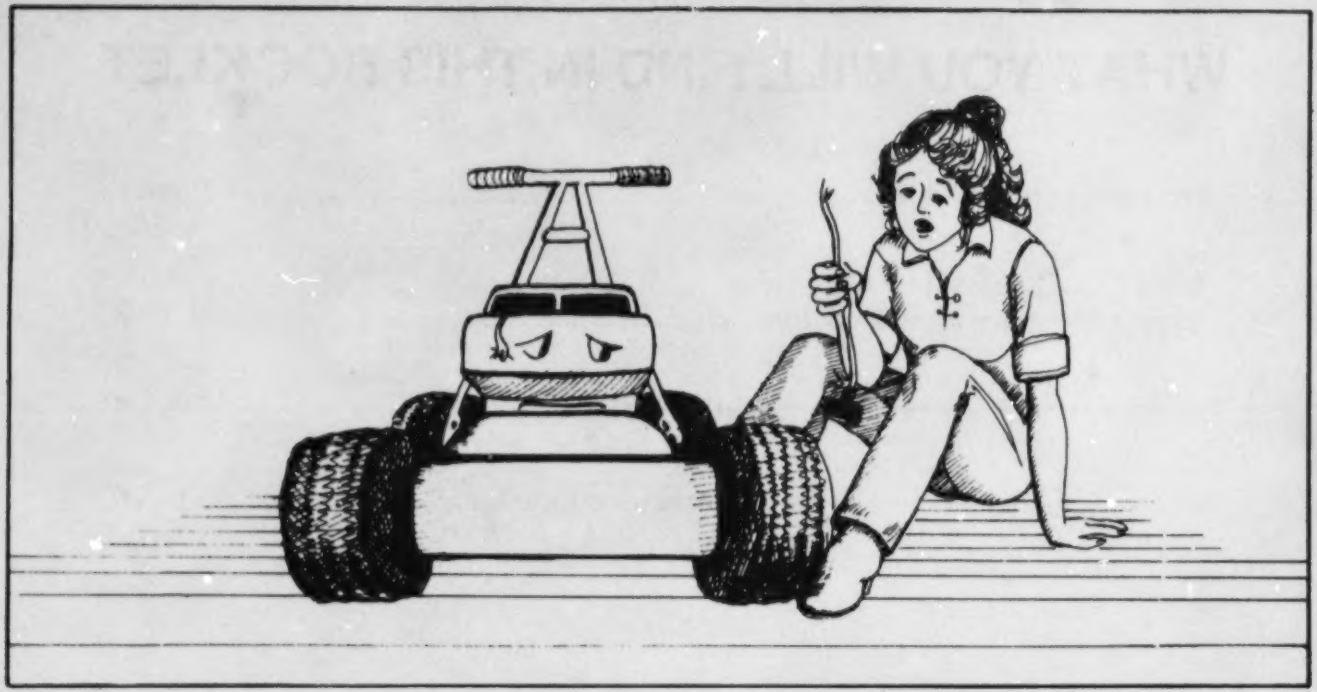
WHAT YOU WILL FIND IN THIS BOOKLET

The point of this booklet ..... Page 1

Tools and equipment for check and replace the starter rewind rope ..... Page 2

Steps for check and replace the starter rewind rope ..... Page 4

Can you check and replace the starter rewind rope? ..... Page 26

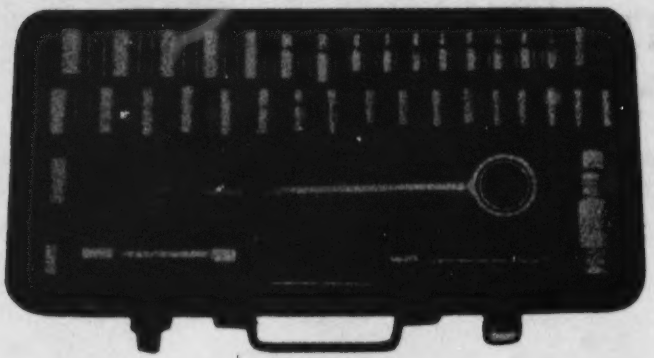


THE POINT OF THIS BOOKLET

As a small engine mechanic, you may have to check and replace the starter rewind rope on a small gas engine. This booklet will help you learn what tools and equipment to use and all the steps of this job.

As you practice these steps on a real engine, you and your teacher can rate your progress on a chart on pages 26-29. Don't forget to follow the safety and good work habits that you have learned.

TOOLS AND EQUIPMENT:

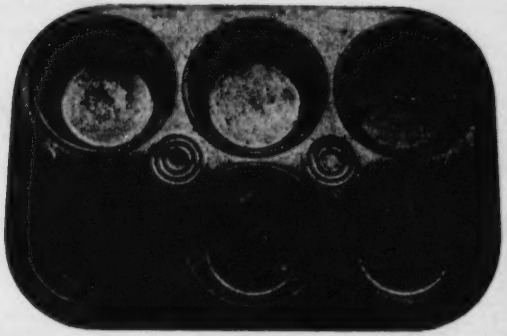


socket set

new starter rope

matches

6" or 8" C-clamp

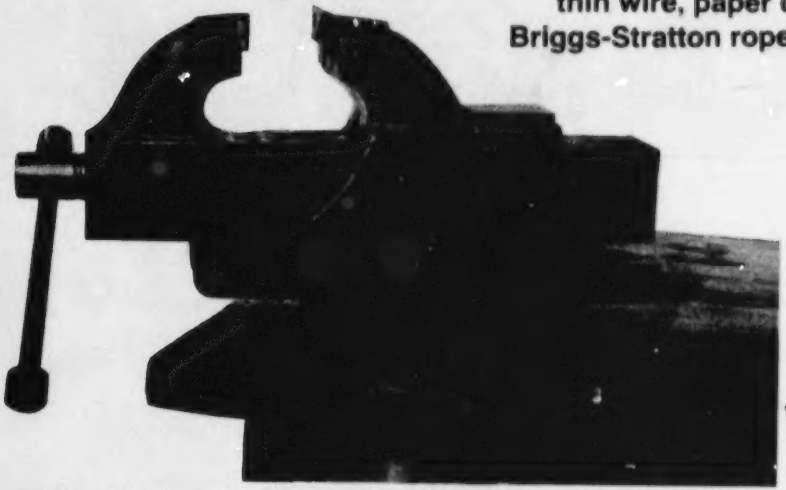


parts container

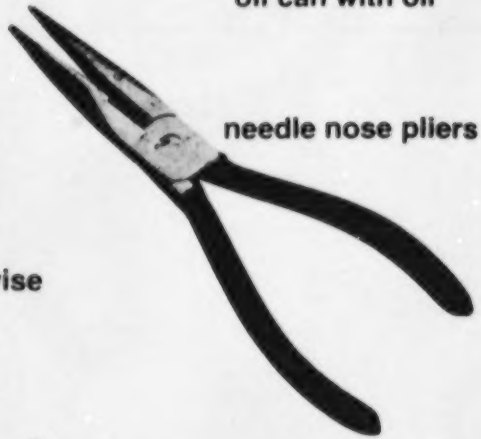
diagonal cutting pliers

thin wire, paper clip, or
Briggs-Stratton rope inserter

oil can with oil



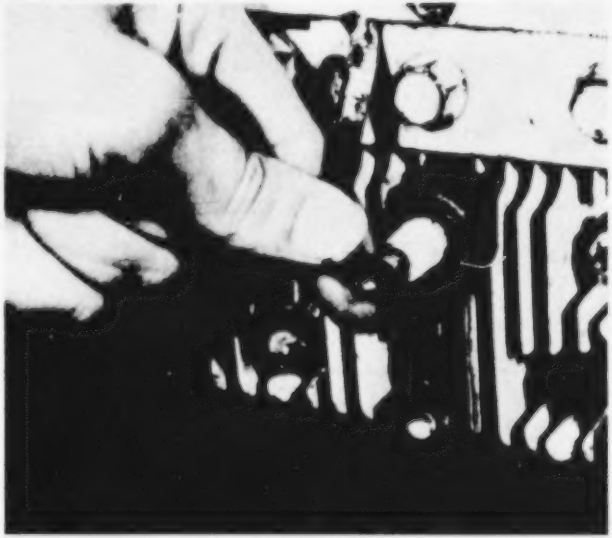
vise



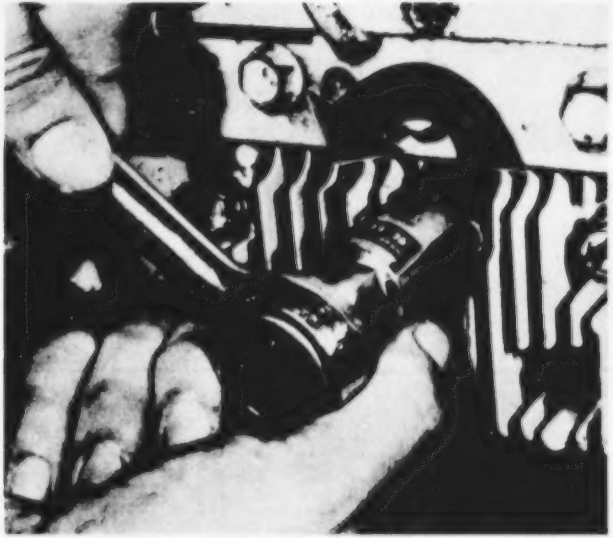
needle nose pliers

Note: Your teacher may want you to use a special clutch holding tool instead of a vise and C-clamp.

STEPS:

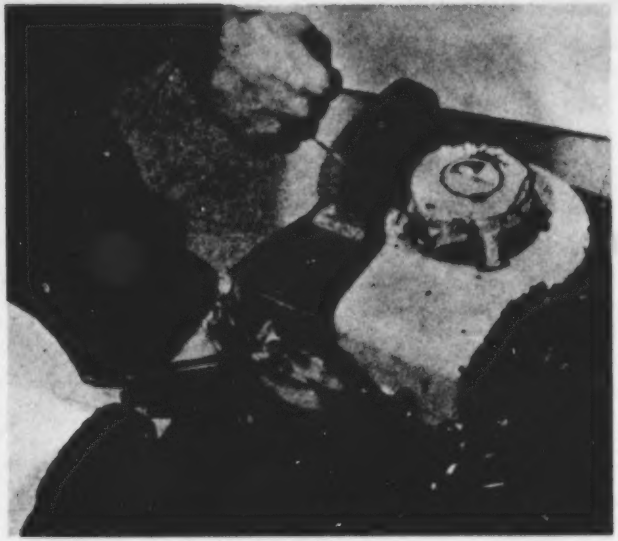


1. Pull off the spark plug wire.



2. Remove the spark plug with a spark plug socket so that the plug is not damaged.

   SAFETY TIP: Always remove the spark plug before working on an engine so that the engine does not accidentally start.



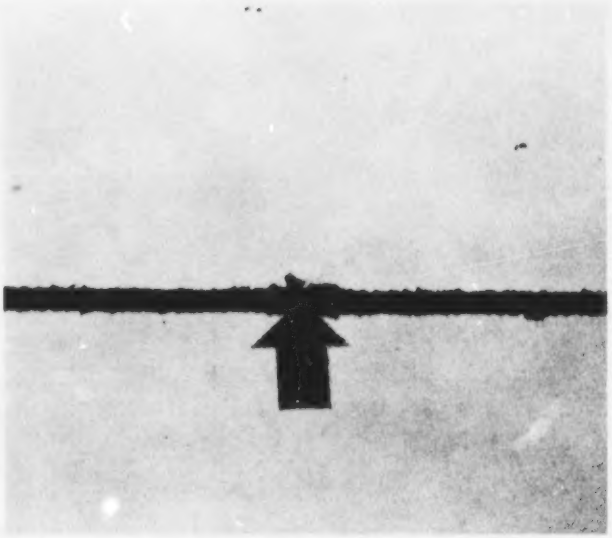
3. To check the rope, first grasp the T-handle on the starter rope and brace your foot on the lawnmower.

   SAFETY TIP: Bracing your foot on lawnmower will keep the engine from falling over on you when the rope is pulled.

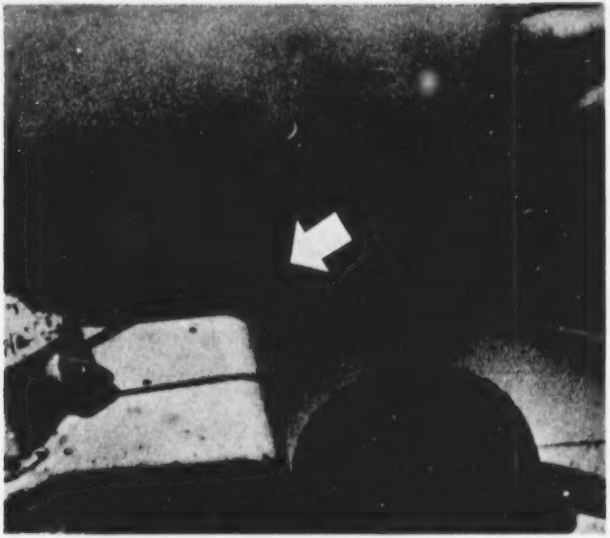
4. Slowly pull the starter rope all the way out.

   SAFETY TIP: Look behind you to see that nothing is in the way and you have plenty of room to pull the rope out all the way.

1i

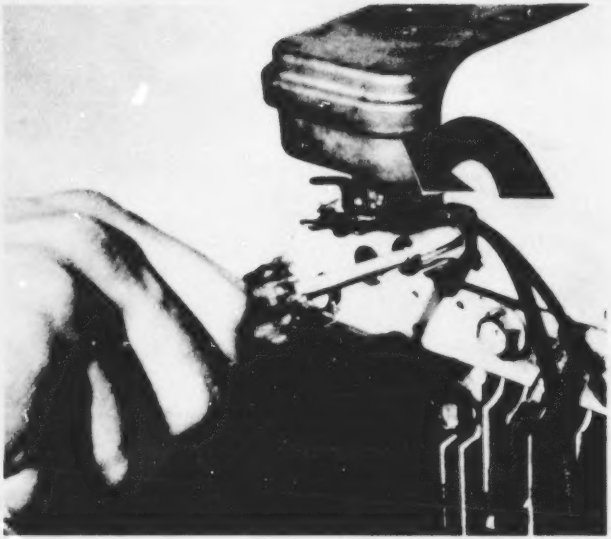


5. Hold the rope out and see if it is badly worn. If it has cuts in it or is frayed, it will need to be replaced with a new nylon rope.

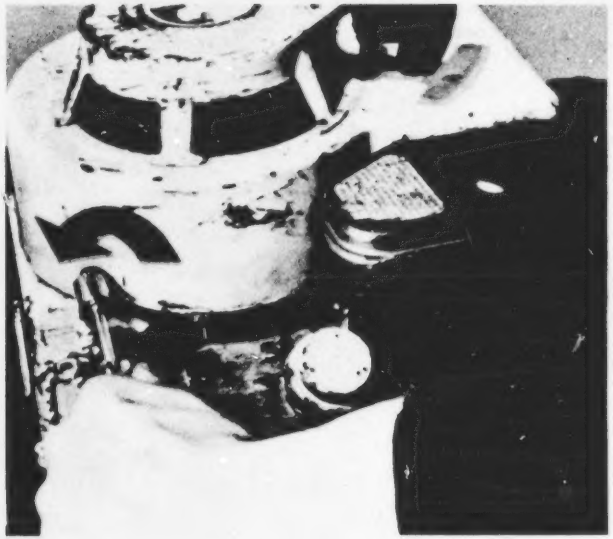


6. While holding the T-handle, slowly let the rope rewind onto the pulley.

   CAUTION: If the rope flies back into the pulley, the rope will soon wear out or the rewind spring may break.

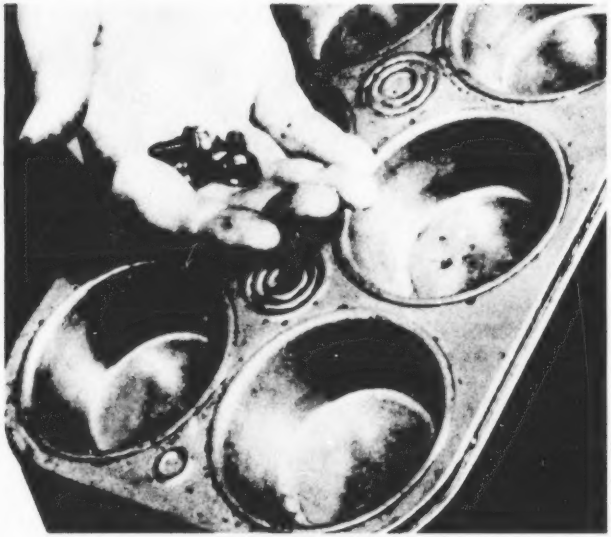


7. To begin replacing the starter rope, remove the throttle cable. Use a 5/16" socket and nut driver to loosen the cable clamp bolt.

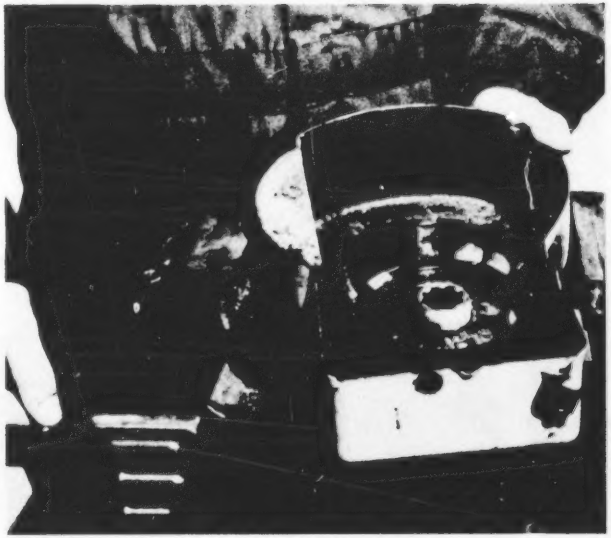


8. With a 7/16" socket and nut driver, remove the 3 bolts on the shroud.

   NOTE: On some engines, a ratchet handle or a 7/16" wrench will be needed to remove one of the bolts on the shroud.

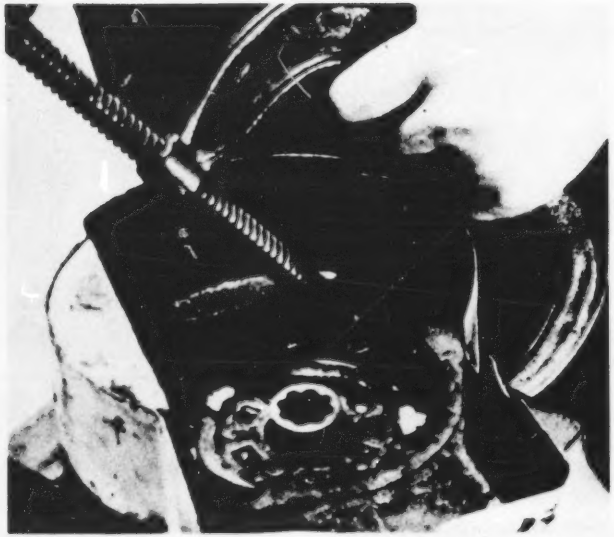


9. Place the bolts in a parts container so they will not get lost or mixed up with other bolts.

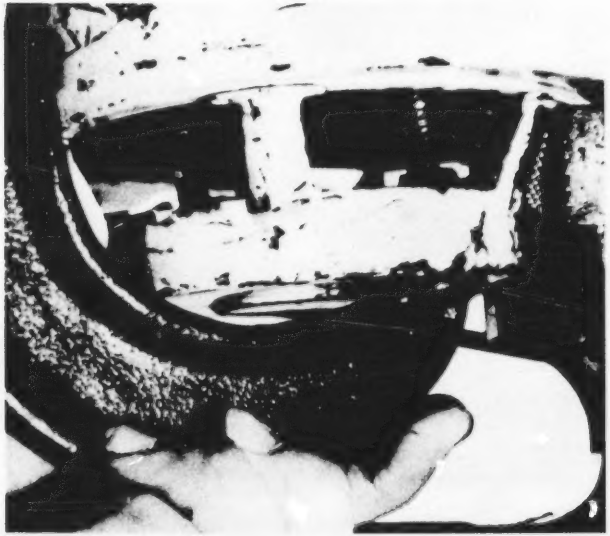


10. Lift off the shroud, turn it over, and place it in a vise.

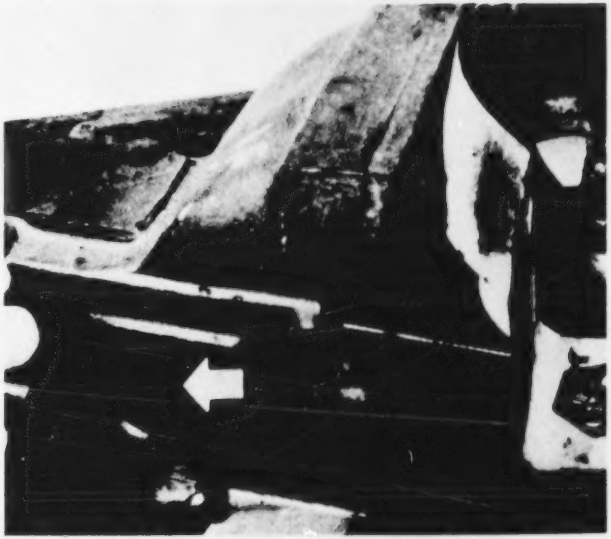
    CAUTION: Do not overtighten the vise or the shroud will bend out of shape.



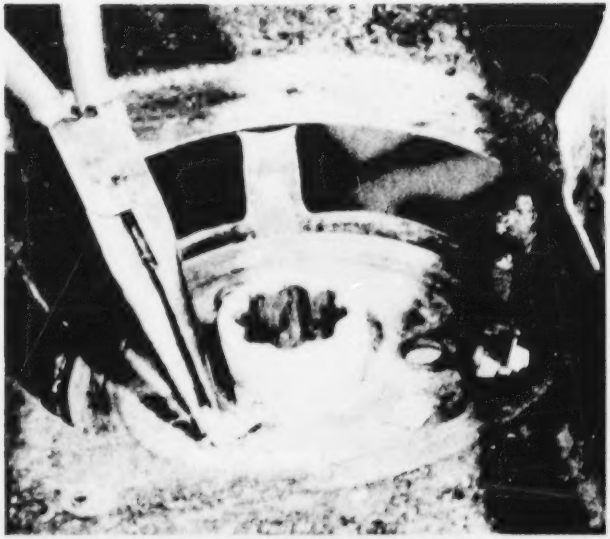
11. Place the C-clamp on the rewind pulley . . .



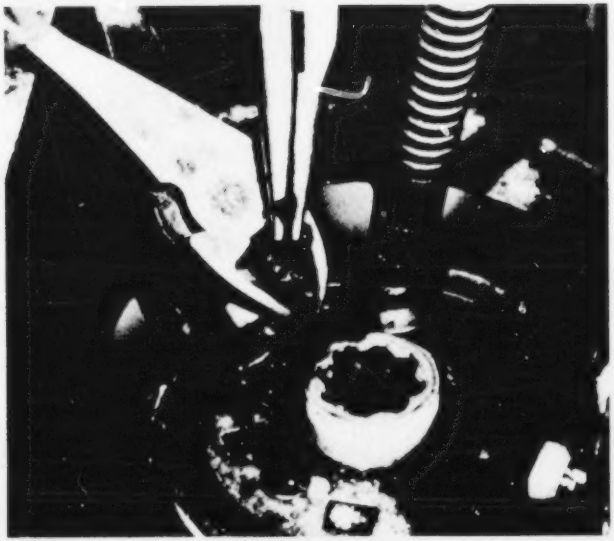
12. and on the bottom of the blower housing. Tighten the clamp just enough so that you will be able to pull out the rope.



13. Slowly pull the rope all the way out and tighten the C-clamp so that the pulley does not move. Let the rope hang loosely down the side of the shroud.

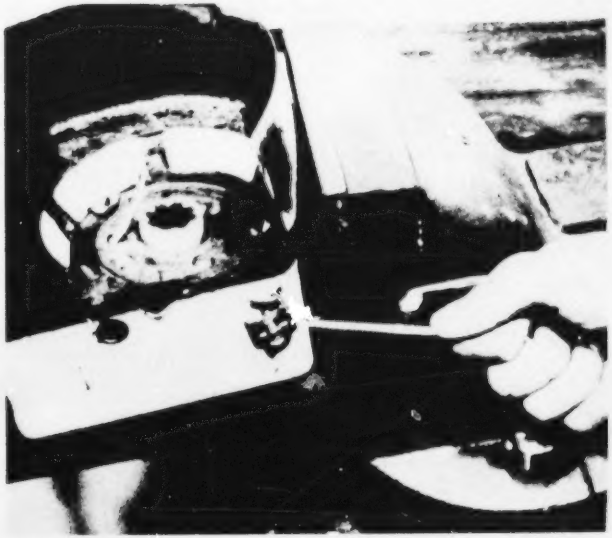


14. Using needle nose pliers, pull the knot on the rope away from the pulley hole.

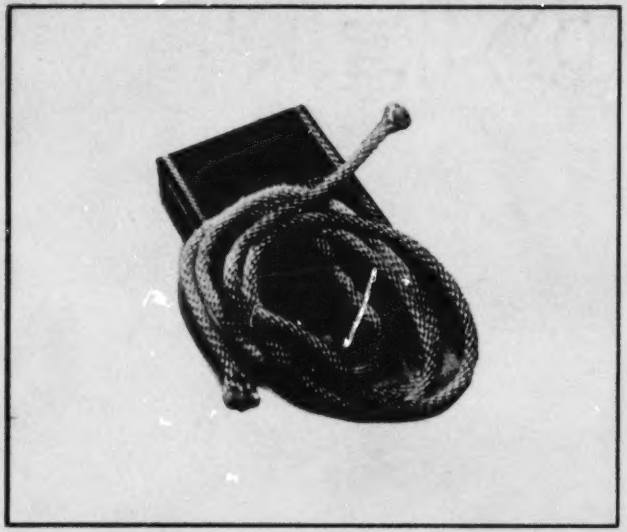


15. Cut off the knot with the diagonal cutting pliers.

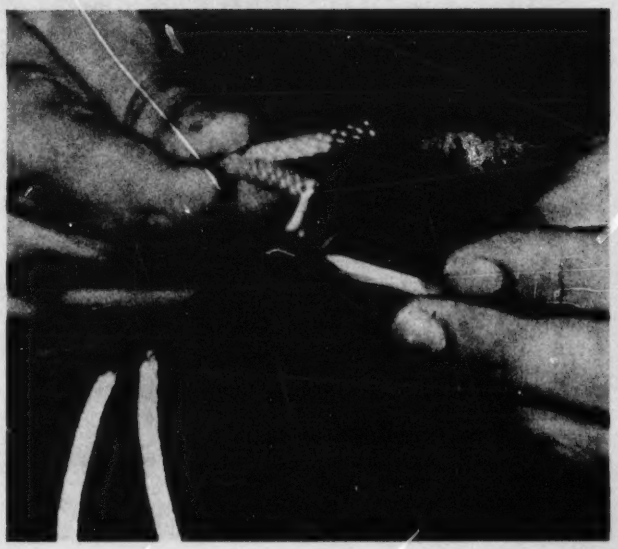
NOTE: If there is no knot showing on the pulley, then cut off the knot under the T-handle.



16. Pull the rope out of the pulley.

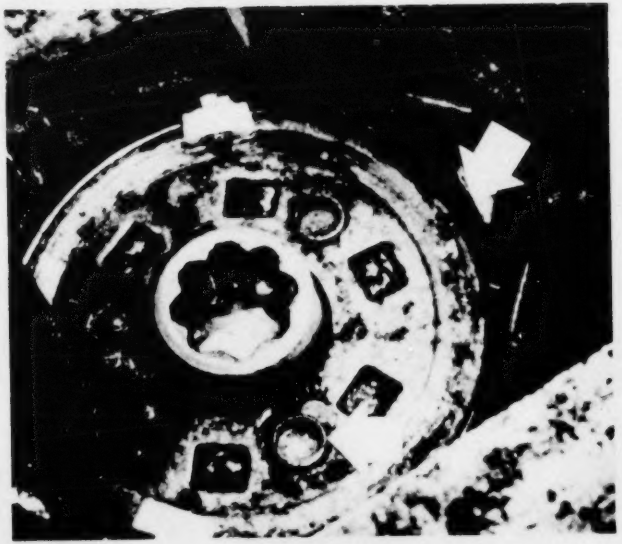


NOTE: When replacing a starter rope with a new one, always use a nylon rope of the correct width and length.

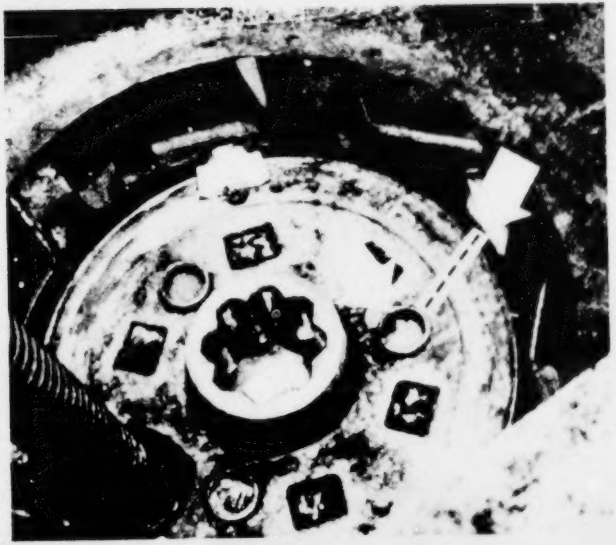


17. Using a match, burn both tip ends of the new rope until they melt slightly.

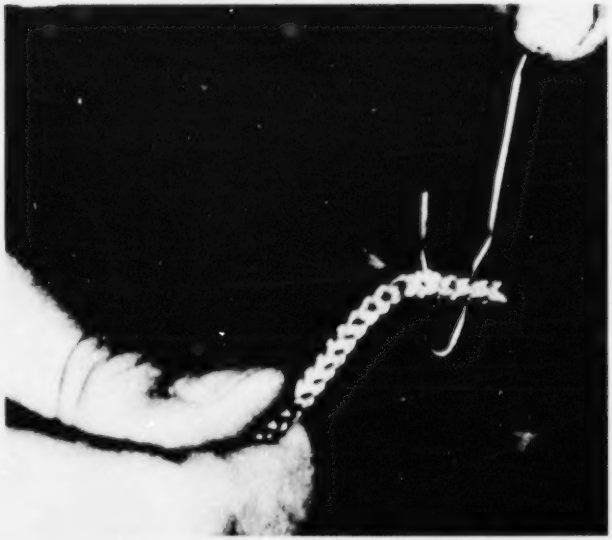
SAFETY TIP: Do not touch the melted rope while it is hot because it could burn your fingers.



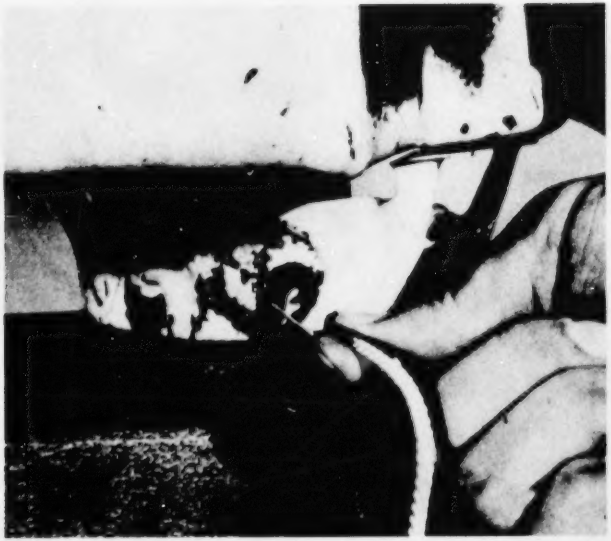
NOTE: Before replacing the rope, line up the holes on the starter housing and pulley. This will make it easier to push the rope through the holes.



18. To do this, hold the pulley and unscrew the C-clamp 1 turn. Move the pulley until the 2 holes are lined up close to each other.



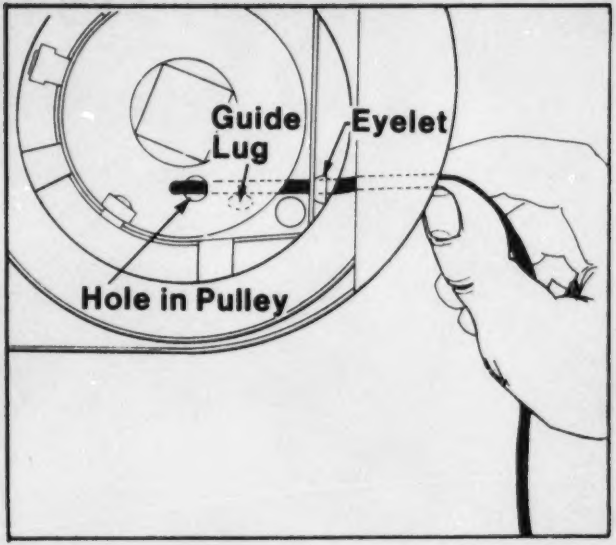
19. Hook a piece of thin wire into one end of the rope. This will help push the rope through the housing and pulley holes.



20. Push the wire and rope through the housing and pulley holes.

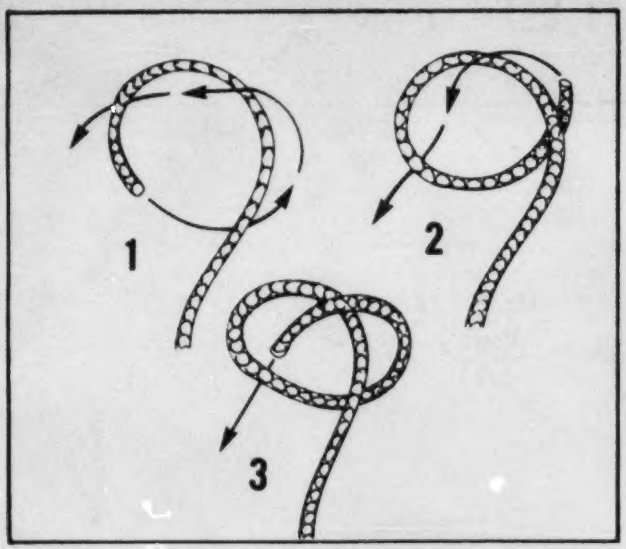
NOTE: If your teacher has a Briggs-Stratton rope inserter, you may use this tool to push the rope through the holes.

21. With the needle nose pliers, pull up the rope through the 2 holes.



NOTE: If there is a guide lug in the pulley, the rope should go on the inside of the lug.

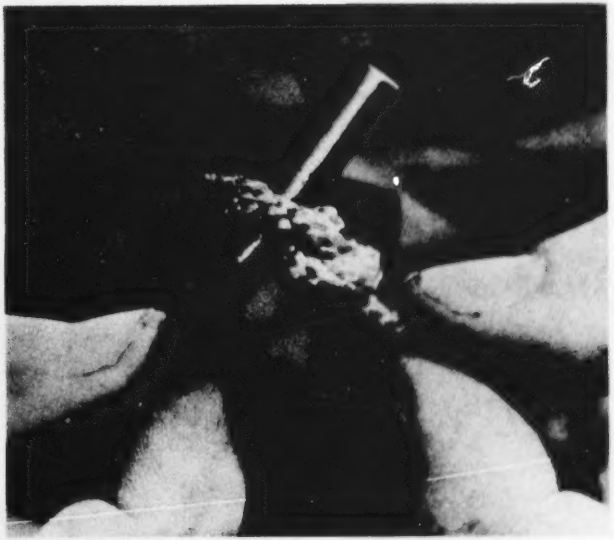
21



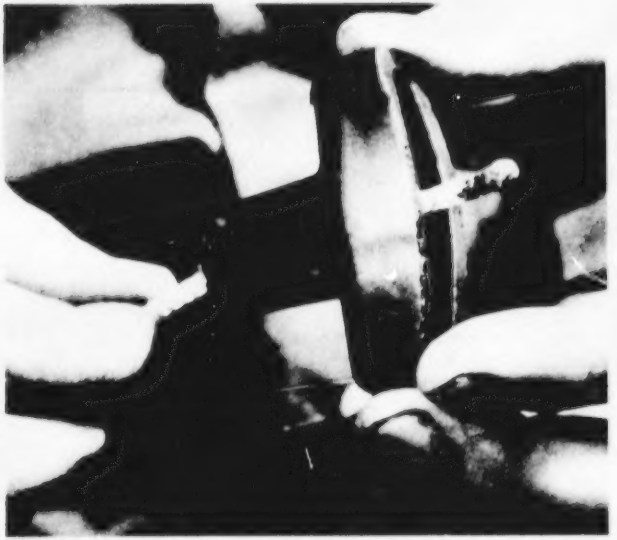
22. Tie a left-handed knot near the end of the rope.

23. Push the knot down into the pulley hole, using the needle nose pliers.

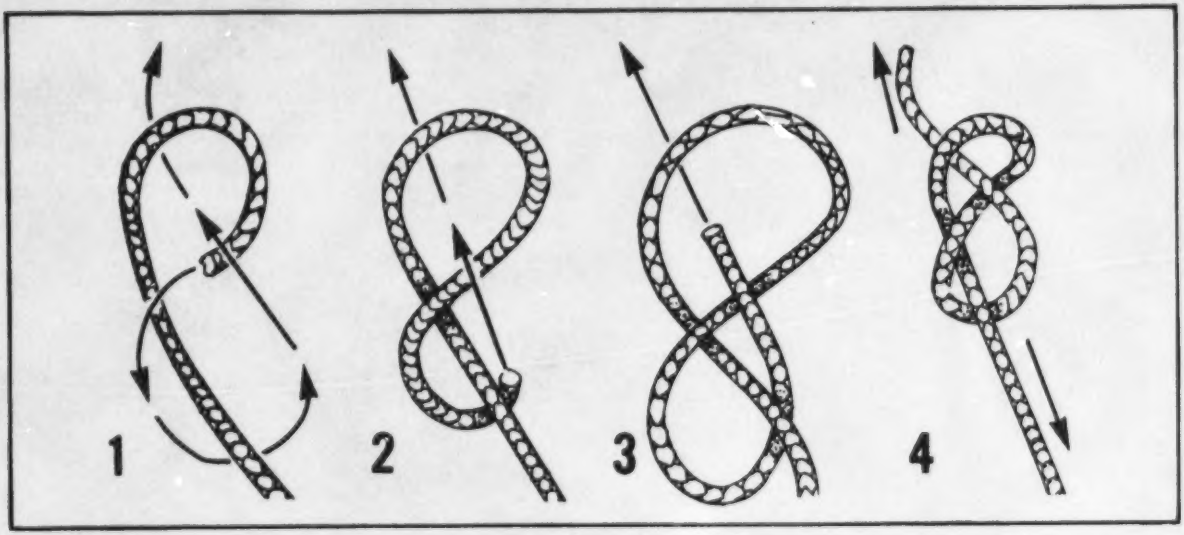
22



24. Remove the T-handle and pin from the old starter rope.

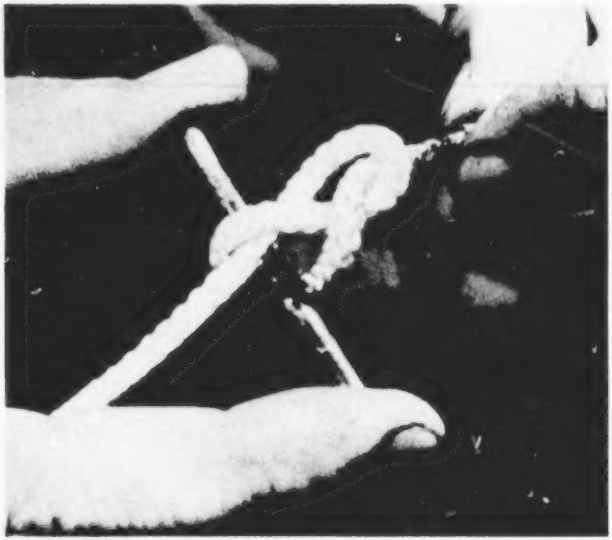


25. Put the T-handle on the end of the new rope.

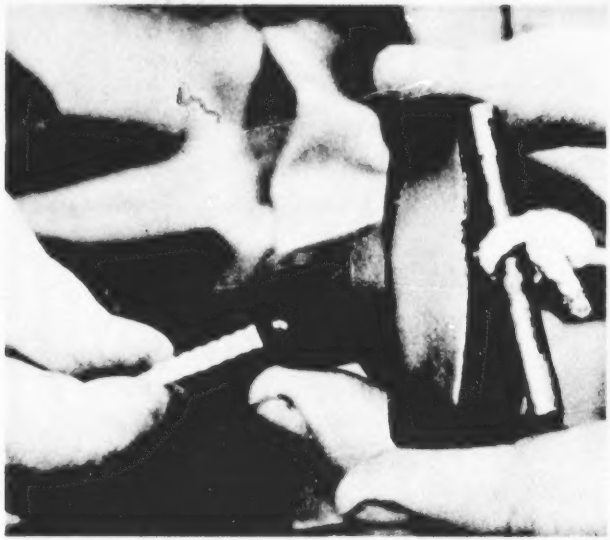


26. Using the steps, tie a figure-8 knot near the end of the rope.

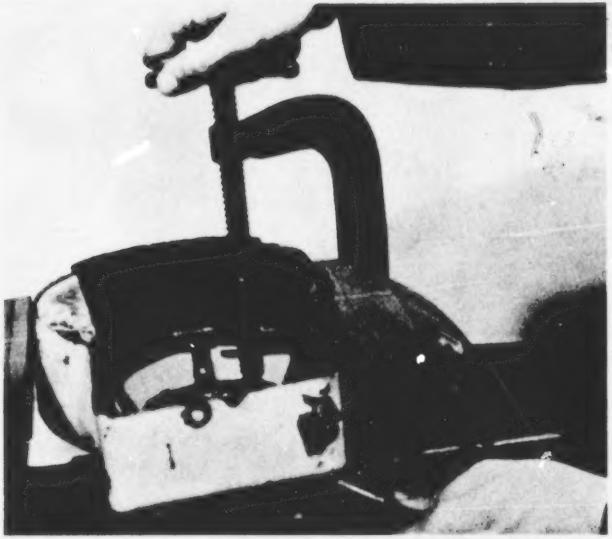
NOTE: Do not pull the knot tight.



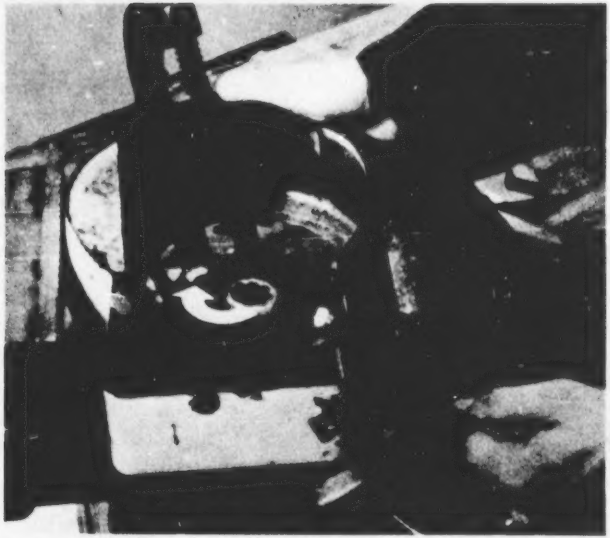
27. Put the pin into the center of the knot. Pull the knot tight.



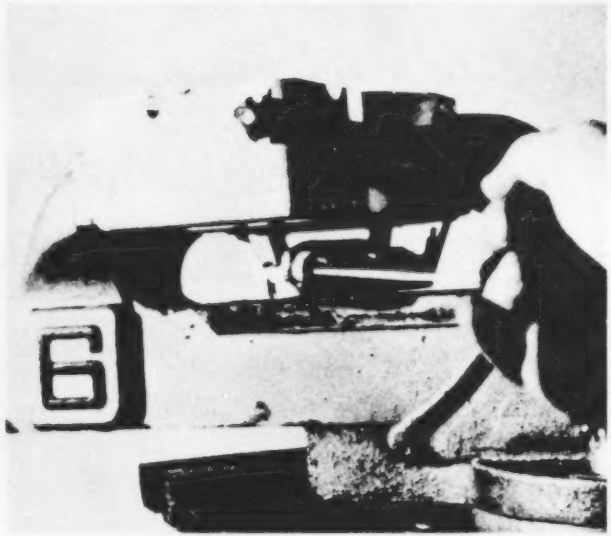
28. Pull the T-handle up over the knot and pin.



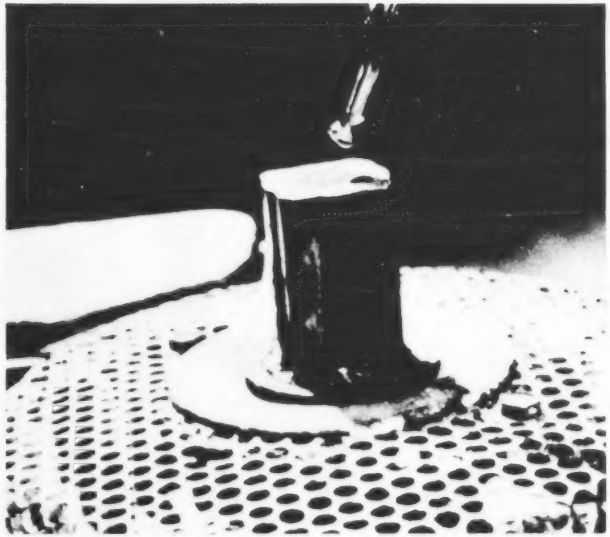
29. Hold the starter rope near the starter housing hole and carefully loosen the C-clamp from the pulley.



30. Slowly let the rope rewind into the pulley.
    SAFETY TIP: Hold onto the rope so that it does not accidentally fly up and hit you.



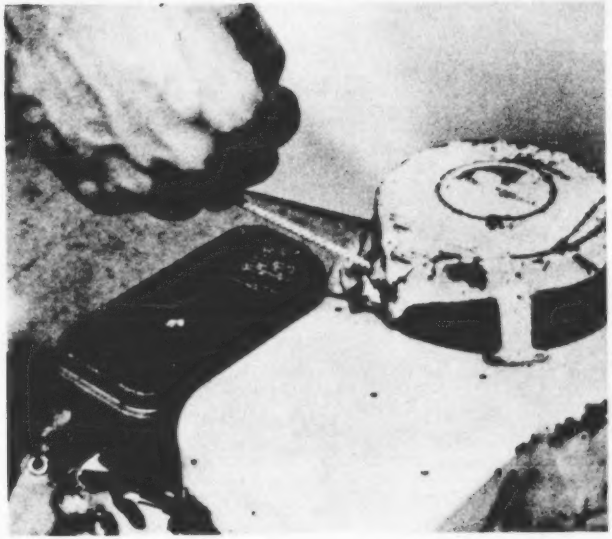
31. When the new rope is in the pulley, pull the rope all the way to see if it has been replaced correctly.



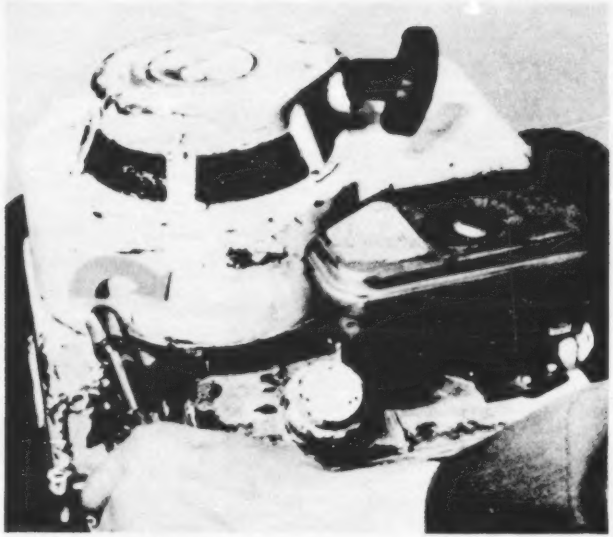
32. Lubricate the starter clutch by squirting 1 or 2 drops of oil into the hole on the clutch.

NOTE: Make sure that the clutch will turn freely on the crankshaft.

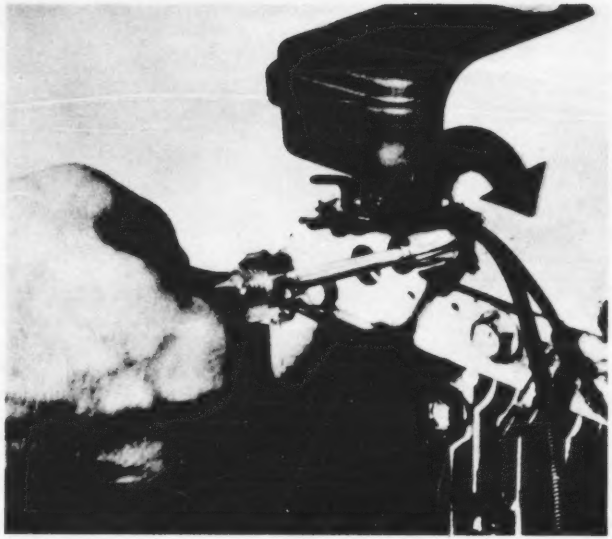
33. Remove the shroud from the vise and put the shroud back on the engine.



34. If the shroud does not fit tightly on the engine, then the clutch is not fitting into the pulley hub. Pull out the rope until the shroud slips into place.

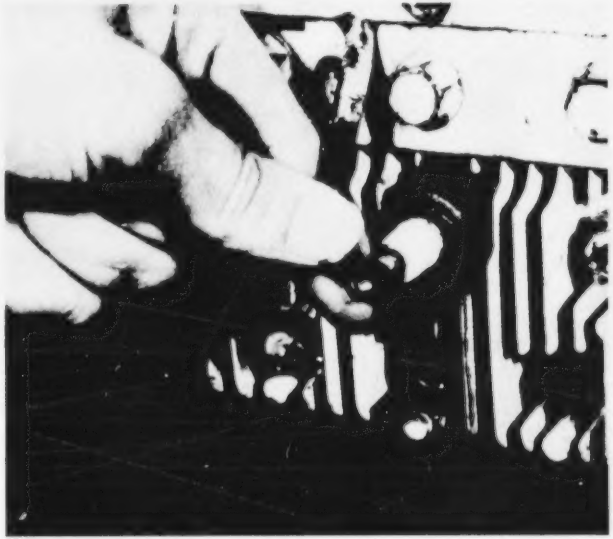


35. Using the 7/16" socket and nut driver, replace the bolts that hold the shroud on the engine.

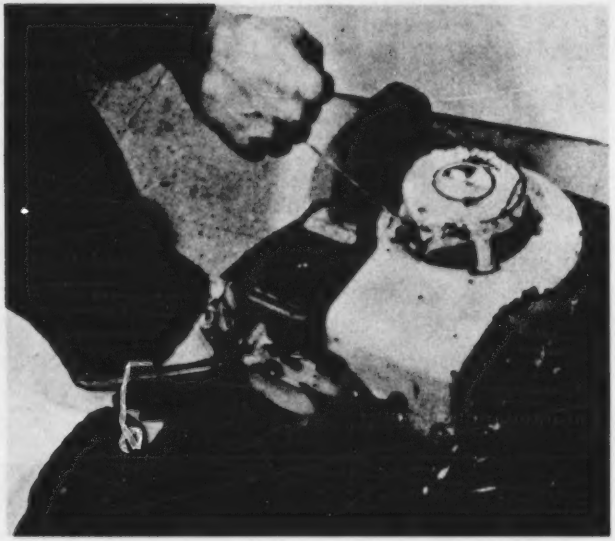


36. Replace and adjust the throttle cable and tighten the cable clamp bolt.

37. Replace the spark plug and tighten it with a spark plug socket.



38. Replace the spark plug wire.



39. Crank the engine again several times to be sure the rope has been installed correctly.

40. Clean up your work area. Clean tools and return them to the tool room. Put the old starter rope in the trash.

CAN YOU CHECK AND REPLACE THE STARTER REWIND ROPE?

Each day, practice doing this job and fill in the chart on the next pages. Use a rating number below that describes how well you can do the steps of the job. By the end of 10 days you will see your progress.

Rating	Meaning
1 =	Can do simple parts of this job, but still needs to be shown how to do most of it
2 =	Can do most parts, but may need help on hard parts
3 =	Can do all parts without help. Ready for job entry with shop supervision

CHECK AND REPLACE THE STARTER REWIND ROPE	DAYS									
	1	2	3	4	5	6	7	8	9	10
1. Assembles and uses tools correctly										
2. Removes spark plug wire and spark plug (Steps 1-2)										
3. Checks the starter rope and determines if a new rope is needed (Steps 3-6)										
4. Removes throttle cable and shroud and places shroud in vise (Steps 7-10)										
5. Secures pulley and removes starter rope (Steps 11-16)										

CHECK AND REPLACE THE STARTER REWIND ROPE	DAYS									
	1	2	3	4	5	6	7	8	9	10
6. Installs new rope of correct width and length into the pulley (Steps 17-23)										
7. Installs T-handle and pin on new rope (Steps 24-28)										
8. Rewinds new rope into pulley and checks it (Steps 29-31)										
9. Lubricates clutch, and checks it (Step 32)										

CHECK AND REPLACE THE STARTER REWIND ROPE	DAYS									
	1	2	3	4	5	6	7	8	9	10
10. Reassembles shroud, bolts, throttle cable, spark plug, and spark plug wire on engine (Steps 32-37)										
11. Cranks engine and checks to see if rope is installed correctly (Step 39)										
12. Cleans up work area and returns tools to the tool room (Step 40)										